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## Cross-sectional study identifying forms of tobacco used by Shisha smokers in Pakistan

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### Abstract

**Objectives:** To estimate the frequency of different forms of tobacco intake such as smoker's tobacco, chewable tobacco and snuff tobacco among shisha smoker's and to study the patterns and predictors of shisha smoking affecting youth from different cities of Pakistan.

**Methods:** A cross-sectional study was conducted including youth from four cities. Participants were asked to fill out a data collection tool at shisha cafes, shopping malls and restaurants. Data was analyzed using SPSSv.18.

**Results:** A total of 406 participants, 296 (73%) males and 110 (27%) females were included in the study. There were 163 (40%) cigarette smokers; 65(16%) chewed tobacco and 33 (8%) snuffed it. The median age at initiation of Shisha smoking was 20 years. 280 (69%) considered Shisha smoking to be less deleterious to health than cigarettes. Respiratory disease was the most commonly cited health effect reported. Most 248 (61%) of the participants were infrequent shisha smokers.

**Conclusion:** There is high frequency of tobacco usage in the form of cigarettes, chewable tobacco and snuff tobacco among shisha smokers of Pakistan. The highest frequency is for cigarette smoking. The rise in Shisha smoking as a trendy social habit appears to be occurring despite emerging scientific evidence of its potential health risks.

**Keywords:** Smoking, Shisha, Tobacco, Cigarette smoking, Pakistan (JPMA 62:192; 2012).

### Introduction

Tobacco is a preventable cause of morbidity and mortality across the globe. Low and middle-income countries are most severely affected. Estimates show that tobacco-related deaths are expected to rise from 5.4 million in 2005 to 6.4 million in 2015 and 8.3 million in 2030.<sup>1</sup> This prediction highlights the need to study the trends and patterns of tobacco usage in different forms as well as to come up with effective control and prevention strategies for these developing countries.<sup>2</sup> Water pipe smoking commonly known as shisha, narghile, hookah, hubble bubble in different countries and cultures, is a form of tobacco intake in which the smoke passes through water before inhalation. Though this practice is centuries old, it has recently increased in popularity among many Arab countries and generally across the world.<sup>3,4</sup> It is now commonly practiced in commercial cafés, restaurants and even at homes. The most common users are university and college students. Even though several health hazards have been associated with water pipe smoking; the general population has not yet fully understood the associated risks.<sup>5,6</sup> The prevalence of tobacco intake in Pakistan is high, reaching up to 33% among middle aged males.<sup>7</sup> It is used in different forms such as cigarettes, chewable tobacco, tobacco snuff and

water-pipe. According to a survey, one in every five Pakistani males has consumed more than 100 cigarettes or used a water pipe in his life time.<sup>8</sup> Furthermore a recently conducted study showed a high smoking index among male smokers in one of the cities in Pakistan.<sup>9</sup> These alarming figures can be controlled with interventions targeting youth. One such study showed that graphic pictorial/multi-media health warnings that depict cosmetic and functional distortions were perceived as effective anti-smoking messages.<sup>10</sup>

Tobacco is used in different forms and among these shisha smoking is gaining immense popularity mainly because of youth appeal.<sup>3,4,6</sup> The increasing trend of water pipe smoking can be attributed to several misconceptions. These include the popular beliefs that the nicotine content in water pipes is lower as compared to cigarettes and that the water used in this form of tobacco intake filters out all the hazardous chemicals such as carbon monoxide, nicotine and tar.<sup>3</sup> These common misconceptions lead the public to believe that water pipe smoking is not a significant health hazard. Research however has proved otherwise, suggesting three additional risks of water pipe smoking over cigarette smoking.<sup>11</sup> First of all water-pipe is smoked over coal adding additional harmful toxins to the smoke. Secondly, a water-

pipe smoker's inhales up to 200 times more smoke in a single session as compared to cigarette smokers.<sup>11</sup> It is linked to high rates of second hand smoking due to its high social acceptance. Water pipe smoking, just as cigarette smoking has been associated with increased rates of pulmonary, gastrointestinal, cardiovascular and haematological disease.<sup>3,12</sup> A possible involvement of the tobacco industry is also suggested by researchers.<sup>13</sup> A recent study done in Pakistan showed that curiosity followed by pleasure seeking and boredom were the most important factors in starting water pipe smoking. The majority of these participants thought of cigarette smoking as being more harmful as compared to water-pipe smoking.<sup>14</sup> Another study in Syria showed that water pipe and cigarette smoking are common among university students, with regular usage with cigarette smoking and occasional water pipe smoking.<sup>15</sup>

The increasing trend of smoking water pipe among youth is mostly attributed to lack of knowledge and the misconceptions regarding its use. As tobacco use practices and beliefs about tobacco are formed early in life, it would be interesting to study the development of tobacco use among youngsters. Our study aims to estimate the frequency of different forms of tobacco intake like smoker's tobacco, chewable tobacco and snuff tobacco among shisha smoker's and to study the patterns and predictors of shisha smoking among youth.

## Methods

This cross-sectional descriptive study was carried out during first half of 2010 across four cities of Pakistan including Karachi, Islamabad, Rawalpindi and Peshawar. A sample size of 385 was calculated by assuming the frequency of different forms of tobacco use as 50% among shisha smokers at a level of significance of  $\alpha < 0.05$ . No previous data existed regarding forms of tobacco use. Purposive sampling from different shisha cafes and shopping malls in the above mentioned cities was done to ensure representation of the general Pakistani population. We approached the participants randomly. Frequent visits were made to one particular place at different times during the day. The participants were enrolled in the study if they had ever smoked shisha and their age was between 18 and 30 years. Those trying it for the first time were not included in the study. Informed consent was taken from each participant. There remains a possibility of response and self-selection bias.

A structured self-administered data collection tool English was developed after literature review and tailored to the local context.<sup>16-18</sup> A pilot survey resulted in translating it to Urdu for ease in understanding of the study population. The data collection tool inquired about the socio demographic data, age at initiation of shisha smoking and whether the participant used any other form of tobacco, cigarettes, oral

tobacco and tobacco snuff. The practices of shisha smoker's were documented by asking about the duration and frequency of shisha use. The knowledge about hazards and addictiveness of shisha smoking was assessed and the participants were also asked about the factors which led them to shisha smoking. They were finally asked if they think shisha is deleterious to health or not and how do they compare it with cigarettes. Ethical approval was granted by the Aga Khan University Ethical Review Committee for the study.

A descriptive analysis was done for demographic features. Continuous variables with normal and non-normal distributions were reported as mean (SD) and number (Percentage) for qualitative variables. All analyses were conducted by using the SPSS v.18.

## Results

A total of 415 participants filled the data collection tool. In the analysis of the data from the study participants after removing the outliers, 406 participants were eventually included in the data analysis. The study participants included males 296 (73%) and females 110 (27%). 218(53%) participants were from Karachi, 58(14%) from Islamabad, 71(17%) from Rawalpindi and 63(15%) from Peshawar. There was equal ethnic distribution with 25% participation from Punjabis, Pathans, Sindhis and Urdu-speaking each. The mean age was  $22.27 \pm 4$  years with median age at initiation of shisha smoking being 20 (IQR- 19-21) years and mode was 19years. The median of the average household income varied from nill to Rs.40,000.

Among shisha smokers, the rate of cigarette smoking was 40.1%(163) ; the use of chewable tobacco, 16%(65); and tobacco snuff, 8.1%(33). The use of beedis, cigars and pipes were grouped together in one category namely "others" and there use was 14%(57) all together. Curiosity (n=252, 62%), social trend (n=225, 55%) and peer pressure (n=114, 53%) were

**Table-1: Different forms of tobacco intake in Shisha smokers.**

Tobacco use in Shisha smoker's	Total n(%)	Male n(%)	Female n(%)	P value
Cigarettes	163(40)	147(90)	17(10)	<0.001
Chewable tobacco	65(16)	56(86)	9(14)	0.009
Tobacco snuff	33(8)	28(85)	5(15)	0.10
Other forms	57(14)	27(47.3)	30(52.6)	<0.001

**Table-2: Frequency of Shisha smoking.**

Pattern of Shisha use	Total n(%)	Male n(%)	Female n(%)
Occasional	246(61)	175(71)	71(29)
Regular	152 (37)	117(77)	35(23)
Daily	8(2)	3(38)	5(63)

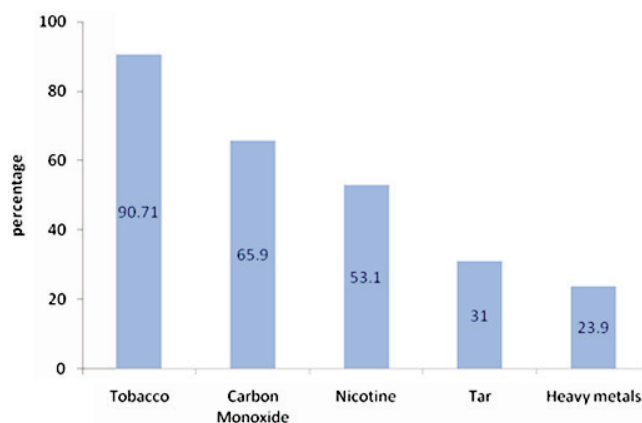


Figure-1: Participants knowledge about contents of shisha.

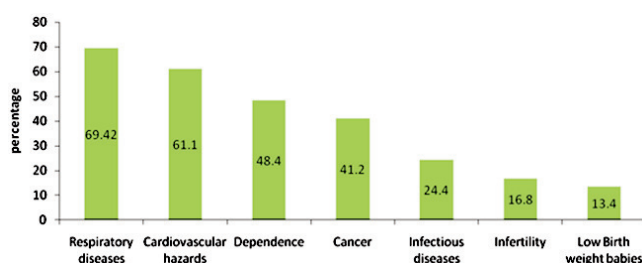


Figure-2: Participants knowledge about potential health hazards of Shisha smoking.

reported to be the common factors for initiation. The frequency of different forms of tobacco intake is indicated in Table 1. Three hundred and eighteen (79%) of the participants reported to have used tobacco in form other than Shisha as well. When asked about the form of tobacco 217 (53%) responded to have started with cigarettes and then followed shisha; whereas only 27(7%) reported to have started solely with shisha smoking. Table 2 shows the frequency of smoking shisha. The predominant pattern of use as occasional smoking (n=246, 61%), followed by regular (n=142, 38%) and daily smoking (n=8, 1 %). The mean duration of smoking shisha in one session was 30-60 minutes (n=237, 58%) for most participants.

The knowledge of the participants about the contents of shisha is shown in Figure-1. Knowledge about potential health risk that associated with shisha use is given in Figure-2. Respiratory diseases (n=282, 69%) was the most commonly cited health effect of water-pipe smoking. More than two-third, 282(69%) people thought that cigarettes are more deleterious to health compared to shisha; whereas 103(25%) thought that both methods are equally deleterious and only 23(6%) believed that shisha is more deleterious to health. 290(72%) people thought that cigarettes are more addictive than shisha. 54 (13%) once attempted to quit. 114 (28%) participants stated that they will definitely quit shisha if they get to know that it is deleterious to health.

## Discussion

Tobacco smoking is a worldwide public health risk. In developing countries tobacco use in form of Shisha is increasing. Shisha smoke contains harmful constituents leading to a variety of life threatening conditions, including pulmonary disease, coronary heart disease, and pregnancy related complications.<sup>3</sup> The fashionable trend of shisha smoking originated in the Middle East and is now gaining immense popularity in Pakistan. It is accepted by the youth as a safe recreational activity, due to lack of government policies, misperceptions about its safety and ignorance of general population and health care professionals. Studies have investigated attitudes and beliefs toward shisha use, although studies of beliefs and attitudes regarding cigarette smoking abound.<sup>10,11,19-21</sup> This study gives an insight on different forms of Shisha smoking among youth in different regions of the country. Keeping in mind, the diversity of cultures found in the country, four different cities were selected to be representative of the Pakistani youth. The male to female ratio of Shisha smokers found in the study was around 3:1, whereas a global youth tobacco survey data also reported a similar ratio.<sup>22</sup> A high frequency of different forms of tobacco use exist among shisha smokers. The median age at initiation of Shisha smoking was similar to those reported by a study done in Egypt in 2003.<sup>24</sup>

In our study curiosity and social trend were reported as the most common factor for initiation of shisha. A study from Egypt involving female university students in 2007, curiosity was the most significant factor for initiation (OR = 3, 95% CI = 1-6, p<.01).<sup>22</sup> In Pakistan university students curiosity was again found to be the most common reason followed by pleasure-seeking, peer pressure, boredom and stress for initiation of Shisha.<sup>14</sup> Occasional shisha smoking was the predominant pattern of use as opposed to regular smoking pattern for cigarettes. This finding was in line with the results of a cross-sectional study done in Syria in 2008 among medical students.<sup>15</sup> Awareness of the hazards of smoking is known but they believe that Shisha smoking is less dangerous than cigarette smoking. Respiratory diseases were the most commonly cited health effect. In a similar study conducted in Egypt 81-92% of the water pipe users reported that they knew that water pipe use was associated with lung cancer, asthma, heart disease, and infection transmission.<sup>24</sup>

In our study, more than two-third of the population reported that cigarettes are more deleterious to health as compared to shisha and around a similar figure also reported that cigarettes are more addictive than shisha. In a study done in Israel, school children endorsed that shisha use is not healthy, though 50% agreed that it was less harmful than cigarettes.<sup>25</sup> Among university students in Syria, 30% of the population thought shisha was less harmful than cigarettes.<sup>15</sup>



In Egypt, 21% of male water pipe users reported that they preferred water pipe use over cigarette smoking because it was less harmful.<sup>25</sup> In a study done in Pakistan earlier, 60% considered water pipe smoking to be less unhealthy than cigarette smoking.<sup>14</sup> Around thirty percent of our study population said that they will quit shisha smoking if they were educated about health. There exists a need to educate the general Pakistani population about the long term adverse effect of Shisha smoking. Health policy makers should devise future strategies to educate the population and to decrease the Shisha smoking rates in our country.

This study has the following limitations. The study was a cross sectional- self reported survey so the target population can over or under report, leading to over or under estimation of certain variables. The target population belonged mostly to a certain socio-economic status and specific age group of 18-30 which limits us to obtain prevalence rates by age and time of initiation of tobacco use and also to generalize our results to the society at large. The cross-sectional nature of the study does not allow temporal relationship to be established between shisha smoking and other forms of tobacco intake. Due to time and monetary constraints the study did not extend to other major cities in the country. Multiple response analysis was not used to assess certain questions such as an individual may have numerous reasons to initiate smoking. Using multiple response analysis gives comprehensive views of the participants. In the future, studies could be carried out to see if different forms of tobacco use particularly cigarettes, gutka and snuff predispose one to shisha smoking or not.

## Conclusion

There is high frequency of tobacco use in form of cigarettes, chewable tobacco and snuff tobacco among shisha smokers. The rise in Shisha smoking as a trendy social habit appears to be occurring despite considerable appreciation of its potential health risks.

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